

We Claim:

1. A DNA construct comprising: a first and a second expression cassette, wherein said first expression cassette in operable linkage comprises (i) a rice actin 1 promoter; (ii) a rice actin 1 intron; (iii) a chloroplast transit peptide encoding DNA molecule; (iv) a glyphosate tolerant EPSPS encoding DNA molecule; and (v) a transcriptional terminator DNA molecule; and said second expression cassette comprising in operable linkage (a) a CaMV 35S promoter; (b) a Hsp70 intron; (c) a chloroplast transit peptide encoding DNA molecule; (d) a glyphosate tolerant EPSPS encoding DNA molecule; and (e) a transcriptional terminator DNA molecule.
- 10 2. A DNA construct of claim 1, wherein the glyphosate tolerant EPSPS encoding DNA molecule consists of an AGRTU.*aroA*:CP4 DNA molecule.
3. A plant comprising the DNA construct of claim 2.
4. A plant of claim 3, wherein said plant is a corn plant.
- 15 5. A corn plant provided by ATCC seed deposit PTA-2478, progeny seeds and plants or parts thereof.
6. A DNA molecule comprising a nucleotide sequence identified as SEQ ID NO:7 or SEQ ID NO:8.
7. A pair of DNA molecules comprising: a first DNA molecule and a second DNA molecule, wherein the DNA molecules are of sufficient length of contiguous nucleotides of SEQ ID NO:7 or its complement to function as DNA primers or probes diagnostic for DNA extracted from
- 20 corn plant PV-ZMGT32(nk603) or progeny thereof.
8. A pair of DNA molecules comprising: a first DNA molecule and a second DNA molecule, wherein the DNA molecules are of sufficient length of contiguous nucleotides of SEQ ID NO:8 or its complement to function as DNA primers or probes diagnostic for DNA extracted from corn plant PV-ZMGT32(nk603) or progeny thereof.
- 25 9. A method of detecting the presence of a DNA molecule in a corn plant provided by ATCC seed deposit PTA-2478 or progeny thereof, the method comprising:
  - (a) extracting a DNA sample from said corn plant provided by ATCC seed deposit PTA-2478 or progeny seeds and plants or parts thereof;

(b) contacting the DNA sample with a DNA primer pair comprising DNA primer molecules of sufficient length of contiguous nucleotides of SEQ ID NO:7 or its complement, or SEQ ID NO:8 or its complement;

5 (c) providing a nucleic acid amplification reaction condition;

(d) performing said nucleic acid amplification reaction, thereby producing a DNA amplicon molecule comprising the DNA molecules selected from the group consisting of SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, or SEQ ID NO:12; and

(e) detecting the DNA amplicon molecule.

10. A corn plant when analyzed by a method of claim 9 produced an amplicon comprising the

10 DNA molecules selected from the group consisting of SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, or SEQ ID NO:12.

11. In the method of claim 9, the DNA amplicon molecule comprising the DNA molecules selected from the group consisting of SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, or SEQ ID NO:12.

15 12. A method of detecting the presence of a DNA molecule selected from the group consisting of SEQ ID NO:7 and SEQ ID NO:8 in a DNA sample, the method comprising:

(a) extracting a DNA sample from a corn plant;

(b) contacting the DNA sample with a DNA molecule identified as SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, or SEQ ID NO:12, wherein said DNA molecule is a DNA probe that hybridizes under stringent hybridization conditions with the DNA molecule selected from the group consisting of SEQ ID NO:7 or SEQ ID NO:8, and does not hybridize under the stringent hybridization conditions with a DNA sample not containing the DNA molecule identified as SEQ ID NO:7 or SEQ ID NO:8;

(c) subjecting the sample and probe to stringent hybridization conditions; and

20 25 detecting hybridization of the probe to the DNA.

13. A DNA molecule selected from the group consisting of SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, and complements thereof.

14. A method of breeding a glyphosate tolerant trait into corn plants comprising

a) extracting a DNA sample from progeny corn plants;

b) contacting the DNA sample with a marker nucleic acid molecule selected from the group consisting of SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, and complements thereof.

c) performing a marker assisted breeding method for the glyphosate tolerant trait, wherein  
5 the glyphosate tolerant trait is genetically linked to a complement of the marker nucleic acid molecule;

15. A method of producing a corn plant that tolerates application of glyphosate herbicide comprising:

(a) transforming a corn cell with the DNA construct of claim 1;

10 (b) selecting said corn cell for tolerance to application of glyphosate;

(c) growing said corn cell into a fertile corn plant;

16. A DNA detection kit comprising: at least one DNA molecule of sufficient length of contiguous nucleotides homologous or complementary to SEQ ID NO:7 or SEQ ID NO:8 that functions as a DNA primer or probe specific for corn event PV-ZMGT32(nk603) and its  
15 progeny.

PCT/US2010/032060

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